

# THE MINERAL INDUSTRY OF EGYPT

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In 2003, the mineral fuels sector continued to play an important role in the economy of Egypt. Mineral industry efforts were focused on the further development of the country's petroleum and natural gas resources. Petroleum exports, which were a major source of export earnings, have been declining in recent years. Oil export revenues decreased to about \$1.6 billion in 2003 compared with \$3.3 billion in 1996. Petroleum export revenues were expected to fall by more than 50% to \$1.0 billion in 2005 (U.S. Energy Information Administration, 2004a§,<sup>1</sup> b§). The natural gas sector, on the other hand, was expanding rapidly following several offshore and onshore discoveries in 2002 and 2003. Proven natural gas reserves, which had been estimated to be about 1.7 trillion cubic meters in 2002 (reported as 58.5 trillion cubic feet), increased to about 1.8 trillion cubic meters (reported as 62 trillion cubic feet) in 2003. Egypt's estimated gross domestic product based on purchasing power parity was about \$257 billion (International Monetary Fund, 2004§). As of July 2003, the country's population was estimated to be about 75 million (U.S. Central Intelligence Agency, 2004§). Besides petroleum and natural gas, Egypt also produced ferroalloys, gold, iron ore, primary aluminum, and steel; secondary copper, lead, and zinc; construction materials such as clay, dimension stone, and gypsum; gemstones; and raw materials for glass.

The Ministry of Industry and Mineral Resources through the Egyptian Geological Survey and Mining Authority (EGSMA) was the Government agency responsible for regulating and controlling prospecting, exploration, and exploitation of all mineral deposits in Egypt. The laws that regulated the mining sector were the Mining and Petroleum Code law No. 66 of 1953 and the Mining Code laws No. 86 and No. 151 of 1956. The Ministry of Petroleum and the Ministry of Electricity and Energy were the Government agencies relevant to the energy sector.

As a result of the restructuring of the energy sector, the Ministry of Petroleum regulates four holding companies: the Egyptian General Petroleum Corporation (EGPC), the Egyptian Natural Gas Holding Company (EGAS), the Egyptian Petrochemicals Holding Company (ECHEM), and the Ganoub El Wadi Petroleum Holding Company (GANOPE). ECHEM, which was established in January 2002, is responsible for promoting investments in petrochemicals, facilitating the development of new projects, and establishing petrochemical plants. EGAS, which was established in August 2001, is responsible for adopting plans to organize and handle the country's natural gas resources. EGPC, which was also established in August 2001, focuses on such petroleum activities as exploration, marketing, production, refining, and transportation. GANOPE, which was established in November 2002, deals with development activities in the Ganoub El Wadi area (American Chamber of Commerce in Egypt, 2003b§; U.S. Department of Energy, 2003§; Ministry of Petroleum, 2005§).

The Organization for Energy Planning is the Government office responsible for analyzing energy policies and energy supply and demand, evaluating energy resources, and developing technical expertise in the field. Government-owned Egyptian Electric Holding Company is responsible for the country's power generation and owns distribution companies.

## Commodity Review

### *Metals*

**Columbium (Niobium) and Tantalum.**—In September, Tantalum Egypt LLC was granted an exploration license for the Nuweibi tantalum-feldspar deposit. The deposit, which had been discovered in the 1970s by a joint-exploration campaign between Egypt and the former Soviet Union, was located about 15 km from Abu Dabbab. Previous works included diamond drilling that totaled 2,746 meters (m) of metallurgical testworks, surface sampling, and trenching. Tantalum Egypt evaluated the available geologic data and, in November 2003, announced total indicated and inferred resource estimates at Nuweibi to be 98.1 Mt of tantalum-feldspar ore at an average grade of 143 g/t tantalum pentoxide or contained tantalum pentoxide of 14.0 million kilograms (reported as 31.6 million pounds based on rounding of tonnage and grade). Tantalum Egypt was owned by EGSMA (50%) and Tantalum International Pty Ltd. (50%). Tantalum International, in turn, was 100% owned by Gippsland Ltd. of Australia (Gippsland Ltd., 2003a-c).

Gippsland Ltd. announced that the Government had granted Tantalum Egypt a 14-square-kilometer (km<sup>2</sup>) area in which to construct a processing plant for the Abu Dabbab project. The plant will be located about 19 km from the Abu Dabbab mine and about 770 km south of Cairo on the western shore of the Red Sea. Tantalum Egypt was the joint-venture company that was undertaking the development of the 40 Mt Abu Dabbab tantalum-feldspar project. The Egyptian Geological and Mining Authority and Gippsland Ltd. each held a 50% interest in the project. Lycopodium, which was an international engineering group, undertook a bankable feasibility study at Abu Dabbab (Gippsland Ltd., 2003b).

In October, Gippsland Ltd. announced that during the fourth quarter of 2003, the company had entered into a 5-year Heads of Agreement with a major European group of companies for the offtake of 2.65 Mt of micronized ceramic-grade feldspar. The first offtake of 250,000 t was scheduled for 2005; the offtake was expected to increase to 900,000 t by 2009. The company expected estimated resources at Abu Dabbab to support a 2- to 3-Mt/yr open pit operation that would produce 1.6 to 2.4 Mt/yr of ceramic-grade feldspar and 800,000 to 1.6 million pounds per year of tantalum pentoxide (Gippsland Ltd., 2003a).

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<sup>1</sup>References that include a section mark (§) are found in the Internet References Cited section.

**Gold.**—In June, Centamin Egypt Ltd. of Australia was awaiting the renewal of security passes for its staff and contractors to resume work at the Sukari project. The company continued to work on a 2-million-ton-per-year (Mt/yr) feasibility study at Sukari. Work included a scoping study by Ausenco Limited of Australia. The Sukari deposit was part of Centamin's Eastern Desert concession, which also included the Abu Marawat, Baramiya, and Hamama deposits. The Sukari area hosted the Sukari Hill deposit, which is a 2.5-kilometer (km)-long outcropping porphyry that contained measured, indicated, and inferred resources of about 65 million metric tons (Mt) at an average grade of 1.48 grams per ton (g/t) gold or 95,240 kilograms (kg) of gold (reported as 3.062 million ounces). These resources pertained to only the southern extremities of the deposit. Total resources at Sukari Hill were estimated to contain more than 311,000 kg of gold (reported as 10 million ounces) (Centamin Egypt Ltd., 2003, 2004\$).

### **Industrial Minerals**

**Cement.**—From 1992 to 1999, Egyptian demand for cement exceeded supply. In 1999, the country imported 4.5 Mt of clinker or about 17% of its clinker demand. The industry was eventually opened to foreign investors, and by 2001, about 50% of the industry was privatized. In 2003, Egypt became a major exporter of cement. The main cement producers were Alexandria Portland Cement, Amreyah Cement Co., Assiut Cement Co., Beni Suef Cement Co., Cementos Mexicanos S.A. de C.V., Egyptian Cement Company S.A.E., Helwan Portland Cement Co., Misr Egyptian Cement Co., Sinai Cement Co., Sinai White Portland Cement Co., Suez Cement Co., The National Cement Co., and Tourah Portland Co. (World Cement, 2004\$).

In 2003, Egyptian Cement Company signed a \$6 million agreement to export 220,000 tons (t) of cement and clinker to the United States. The first 40,000 t was exported in March (American Chamber of Commerce in Egypt, 2003a\$).

**Fertilizers.**—Norsk Hydro of Norway (47.5%) and Chile's Sociedad Química y Minera de Chile SA (47.5%) signed a joint-venture agreement with two Egyptian partners (not identified) (2.5% each) for the construction of an 85,000-tons-per-year (t/yr) plant to produce liquid fertilizers in northern Egypt. The new jointly owned company will operate under the name of Misr Specialty Fertilizer Company. The construction of the plant was expected to be completed in 2004 (Middle East North Africa Financial Network, Inc., 2003c\$).

In September, Arab Banking Corporation of Bahrain (ABC) and Arab Fertilizers and Chemicals Company of Egypt signed an agreement by which ABC was appointed as advisor for an ammonium nitrate-based (NPK) fertilizer-plant project being developed in Egypt by the Joint Arab Investment Corporation of Abu Dhabi. The gas-based plant, which was expected to produce 1 Mt of high-grade NPK fertilizers and 0.6 Mt of calcium nitrate fertilizers, will be located in Western Suez at a cost \$350 million. The construction of the plant represented the first stage of a planned chemical fertilizer complex. Natural gas, phosphate rock, and potash from local suppliers will be the major feedstocks. The construction of the plant was expected to be completed during the fourth quarter of 2006 (Middle East North Africa Financial Network, Inc., 2003a\$).

**Sulfur.**—Egypt's Alexandria Mineral Oil Company awarded Technip-Coflexip of France a contract for the operation of an acid gas treatment plant in Alexandria. The plant will use live microorganisms as catalysts to remove hydrogen sulfides and sulfur oxides from the acid gas and convert it into elemental sulfur. The plant will have a capacity of 4,000 t/yr of recovered elemental sulfur (Fertilizer, 2003).

### **Mineral Fuels**

Although most of Egypt's offshore discoveries have been natural gas, several foreign companies were exploring for petroleum in the Mediterranean; these companies included BP p.l.c., ENI-Agip of Italy, Shell Egypt N.V., and Total S.A. (formerly TotalFinaElf). The investment of international gas and oil companies in Egypt in 2003 was estimated to be about \$2 billion. The fastest growing sector was natural gas. It was expected that by 2004, Egypt could become a significant exporter of liquefied natural gas (LNG) (American Chamber of Commerce in Egypt, 2003b\$; U.S. Energy Information Administration, 2004a\$).

As the operator of the Suez Canal and the Sumed pipeline, Egypt was an important transit corridor in the Persian Gulf. The existence of an alternate route around the Cape of Good Hope in South Africa, however, and the competition from oil pipelines, has affected tanker traffic and revenues over the past decade (American Chamber of Commerce in Egypt, 2003b\$; U.S. Energy Information Administration, 2004a\$).

Among the many steps taken by the Egyptian Government to develop the energy sector was the negotiation with neighboring countries to officially delimit their economic zones in the Mediterranean Sea. It was expected that natural gas exports will overtake petroleum exports in the coming years following the startup of two LNG export terminals scheduled to be completed in 2004 and 2005 (U.S. Energy Information Administration, 2004a\$, b\$).

**Natural Gas.**—In 2003, production of gross natural gas was about 31 billion cubic meters (table 1). As of November 2003, the Government's revised estimate of proven natural gas reserves was about 1.8 trillion cubic meters (reported as 62 trillion cubic feet). Probable reserves were estimated to be about 3.4 trillion cubic meters (reported as 120 trillion cubic feet). The International Egyptian Oil Company, a subsidiary of ENI-Agip of Italy, was Egypt's leading natural gas producer. The company operated in the Gulf of Suez, Nile Delta, and Western Desert (U.S. Energy Information Administration, 2004a\$).

Dodsal Pvt Ltd. of India was awarded a contract for the construction of the Damietta LNG plant. The engineering procurement and construction (EPC) contract for the first train at Damietta was awarded in 2001 to the joint venture formed by Halliburton KBG Group of the United States, JGC Corp. of Japan, and Técnicas Reunidas S.A. of Spain, which, in turn, subcontracted Dodsal. The LNG train

will have a capacity of 5 Mt/yr and was scheduled to be completed by August 2004 (Middle East North Africa Financial Network, Inc., 2003b§).

BG Group plc (BG) and its partners held an EPC contract for the Egyptian LNG project at Idku, which is located about 50 km east of Alexandria. The project, which will initially consist of a two-train LNG plant, loading jetty, storage tanks, and utilities, was expected to produce a total of 7.2 Mt/yr of LNG. The total cost of the project was estimated to be about \$1.9 billion. Train 1, which had a capacity of 3.6 Mt/yr, was scheduled to produce its first LNG in the third quarter of 2005. The cost of the train was expected to be \$1.35 billion, and financing will be arranged by 12 international banks and 3 Egyptian banks. The Sienna and Simian fields, which are located in the BG-operated West Delta Deep Marine (WDDM) concession, will supply the gas for train 1. The engineering, procurement, installation, and commissioning (EPIC) contract for the development of the Sienna and Simian fields was awarded in May to Technip Offshore of the United Kingdom. Equity in train 1 was held by BG (35.5%), Edison International S.p.A. of Italy (35.5%), EGAS (12%), EGPC (12%), and GDF International S.A. (a wholly owned subsidiary of Gaz de France) (5%). A 20-year agreement was signed with Gaz de France for the purchase of the entire production of train 1 (BG Group plc, 2003a, d; Oil & Gas Journal, 2003a; Petroleum Economist, 2003).

Bechtel Inc. of the United States, which was previously awarded the contract to construct train 1, began construction of train 2 in January. Train 2 was expected to double the capacity of the complex by producing an additional 3.6 Mt/yr. Startup was targeted for mid-2006. A 20-year agreement was signed with BG Gas Marketing (a subsidiary of BG) to purchase the entire output of train 2. The Sapphire field in the BG-operated WDDM concession offshore the Nile Delta will supply the gas for train 2. The EPIC contract for the development of the Sapphire field was scheduled for July. Equity in train 2 was held by BG (38%), Edison International (38%), EGAS (12%), and EGPC (12%). Both trains will share marine and storage facilities (BG Group plc, 2003a; Oil & Gas Journal 2003a; Petroleum Economist, 2003).

In March, BG announced its first delivery of gas to the Egyptian market from the Scarab Saffron fields. The gasfields were within the WDDM concession, which is located offshore the Nile Delta about 120 km north of Alexandria. BG Egypt (a subsidiary of BG) was the operator. The WDDM concession formed the largest gasfield development project in Egypt; it hosted several gas discoveries, namely Saffron, Sapphire, Saurus, Scarab, Sequoia, Serpent, Sienna, Simian, and Solar. The Scarab/Saffron development included an offshore network that consisted of two pipelines with a capacity to transport LNG for two 3.6-Mt/yr trains. Production was expected to reach a rate of about 9.3 million cubic meters per day (reported as 330 million cubic feet per day) during a 90-day run-in period. BG had a 50% working interest in WDDM; Edison International held the remaining 50% interest. Burullus Gas Company, which was a joint-venture company formed by EGPC (50%), BG Egypt SA (25%), and Edison International S.p.A (25%), was responsible for exploration, field development, and operations on behalf of the WDDM concession holders (BG Group plc, 2003c; Oil & Gas Journal, 2003b).

In 2001, Apache Corporation of the United States acquired Repsol YPF S.A.'s interest in the Western Desert and became the operator of the Khalda concession. The concession was located about 400 km west of Cairo and held two dozen gasfields and oilfields. In 2003, the company made several discoveries, including Alexandrite, Atoun, Emerald, JG-2, Matruh, and Qasr, in addition to 13 discoveries at East Bahariya; it completed 94 of the 107 wells drilled during the year. Qasr was the company's most significant gas discovery in 2003. The Qasr-1X and Qasr-2X wells confirmed a 213-meter gas condensate column with estimated recoverable reserves of between 28 billion and 85 billion<sup>2</sup> cubic meters (reported as 1 trillion to 3 trillion cubic feet of condensate) and 20 million to 70 million barrels (Mbbbl) of condensate. The Qasr-1X was brought into production in December 2003 at a rate of about 283,000 cubic meters per day (reported as 10 million cubic feet per day). Apache was working on development plans to deliver gas from Qasr in 2005. The Government approved a 97 km<sup>2</sup> lease for the property (Apache Corporation, 2003c; 2004, p. 15; 2003a§, b§).

In March, Apache announced the appraisal of the Abu Sir field, which was its West Mediterranean concession. Abu Sir-2X was the company's fifth deepwater well in the region. Apache reported that the well, which was drilled to a total depth of about 4,012 m (reported as 13,162 feet), penetrated a 41-m column with about 26 m of gas pay. Deeper in the well, additional gas shows were encountered in Miocene sands between 3,734 m and 3,707 m, where drilling logs indicated the presence of approximately 30 m of possible pay. The deeper section was subsequently abandoned for technical reasons (Apache Corporation, 2003d).

In July, Apache announced six discoveries from its 2003 onshore drilling program in Egypt's Western Desert. In its Matruh concession, Apache drilled the Alexandrite-1X well. The well logged 44 m (reported as 146 net feet) of gas and condensate pay in the Kabrit, Lower Safa, and Upper Safa formations. A test of the Kabrit interval indicated a daily flow rate of about 566,300 cubic meters<sup>3</sup> (reported as 20 million cubic feet) and 1,683 barrels of condensate. The Kabrit well established the first production from the Kabrit sands. Apache planned to drill a confirmation well later in the year (Apache Corporation, 2003a).

In December, Apache announced the signing of a Memorandum of Understanding (MOU) for a deepwater development lease, field development plan, and gas sales agreement with EGAS and EGPC. The agreement, which was for a minimum of about 76 billion cubic meters (reported as 2.7 trillion cubic feet) of natural gas over 25 years, included the deepwater portion of the company's West Mediterranean concession, which was expected to begin production in 2007. The terms of the agreement included supplying about 11.3 million cubic meters per day of gas (reported as 400 million cubic feet per day) to the Egyptian market over the first 5 years and 10.6 million cubic meters per day (reported as 375 million cubic feet per day) for the remainder of the term. Appraisal drilling and construction was to begin soon after the agreement was executed (Apache Corporation, 2003b; 2004, p. 15).

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<sup>2</sup>Text revised on May 12, 2005.

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In April, Petroliaam Nasional Berhad (Petronas) of Malaysia signed an agreement for the acquisition of Edison S.p.A.'s participating interest in the WDDM concession. The closing of the sale was subject to the Egyptian Government's approval. Petronas also held a 16% stake in Egypt's North East Mediterranean Deep Water (NEMED) concession, which is located about 100 km northwest of WDDM (Petroliaam Nasional Berhad, 2003).

In June, Rashid Petroleum Company (Rashpetco) [a joint-venture company formed by EGPC (50%), BG (20%), Shell Egypt NV (20%), and Edison International (10%)] announced the discovery of gas at the Rosetta-11 well. Following the discovery, the partners applied to EGPC for a development lease and were awaiting approval (BG Group plc, 2003b).

Edinburgh-based Melrose Resources plc made three gas discoveries in its El Mansoura concession in 2003. All three wells were commercial and included the Mansouriya No. 1, South Batra No. 1, and South Mansoura No. 2 wells. The concession covered an area of 1,368 km<sup>2</sup> and was located north of Mansoura City in the northern part of the Nile Delta. Melrose's interests in Egypt included a 50% interest in the El Mansoura concession and a 46% interest in the Qantara concession. The operator of both onshore concessions was Merlon Petroleum Company of the United States (Melrose Resources plc, 2003, p. 6-7). The areas surrounding these discoveries were to be converted to development leases when the terms of the exploration concession expire in mid-2006. The company planned to continue with its drilling program. The South Batra No. 1 well, which was drilled in January, was brought into production in December. Production at South Batra was about 849,000 cubic meters per day gross (reported as 30 million cubic feet per day gross). Reserves were estimated to be about 14 billion cubic meters gross (499 billion cubic feet equivalent gross) (Melrose Resources plc, 2003, p. 7). The South Mansoura No. 1 well, which was drilled in February, was located to the south of the South Batra discovery. Reserves at Mansoura were estimated to be 532 million cubic meters gross (reported as 18.8 billion cubic feet gross). The field was expected to come into production in 2004 (Melrose Resources plc, 2003, p. 7-8). The Mansouriya No. 1 well was drilled in April and went into production in December at a rate of about 283,000 cubic meters per day (reported as 10 million cubic feet per day). Reserves were estimated to be about 849 million cubic meters of dry gas (reported as 30 billion cubic feet of dry gas) (Melrose Resources plc, 2003, p. 8).

**Petroleum.**—Production of crude petroleum was 221 Mbbl in 2003 (table 1). According to the U.S. Energy Information Administration (2004a§), consumption of petroleum products has been relatively flat since 1999 owing, in part, to reductions in subsidies for consumption of petroleum products and to the use of compressed natural gas as a fuel for motor vehicles.

Petroleum production came from four main areas: the Eastern Desert, the Gulf of Suez, the Sinai Peninsula, and the Western Desert. The leading producer in the Gulf of Suez was Gulf of Suez Petroleum Company (Gupco), which was a joint venture between BP p.l.c. and EGPC. The second leading producer was Petrobel, which was a joint venture between ENI-Agip of Italy and EGPC. Other major companies in the Egyptian oil industry included Badr el-Din Petroleum Company (a joint venture between Shell and EGPC), El Zaafarana Oil Company (a joint venture between BG and EGPC), and Suez Oil Company (a joint venture between Deminex GmbH and EGPC) (Alexander's Gas and Oil Connections, 2003a§; U.S. Energy Information Administration, 2004a§).

Dover Petroleum Corporation of Canada held a 56.25% interest in the Dover Egypt I joint venture, which operated the East Wadi Araba concession. The concession, which is located in the Gulf of Suez, was awarded to Dover in August 2002. In January 2003, the company announced the existence of two hydrocarbon columns in exploratory well EWA-2X. A more-extensive well evaluation was to be performed later in the year by Schlumberger Limited. In the meantime, the company began drilling a second exploratory well prospect (EWA-1X) in the northern region of the area covered by the concession. After evaluation of the EWA-2X well, Schlumberger estimated that the well had more than 200 Mbbl of crude petroleum in place (Canada News Wire, 2003§; Dover Petroleum Corporation, 2003§).

In the East Bahariya concession, Apache made five discoveries within the Abu Roash G and Upper Bahariya formations. The wells tested a combined rate of 4,592 barrels per day of oil. Apache was the operator and held a 100% contractor interest in the concession (Apache Corporation, 2003a).

## Infrastructure

Projects to enhance and enlarge the Suez Canal continued in 2003. Also during the year, the Sumed pipeline's capacity was increased to 2.5 Mbbl/d from 1.6 Mbbl/d. The pipeline ran from Ain Sukhna on the Gulf of Suez to Sidi Kerir on the Mediterranean and was owned by the Arab Petroleum Pipeline Company, which was a joint venture among the Governments of Egypt (50%), Saudi Arabia (15%), the United Arab Emirates (15%), and Qatar (5%) (U.S. Energy Information Administration, 2004a§).

In 2002, an Egyptian consortium formed by EGAS, Engineering for the Petroleum & Process Industries (EPC contractor), and Petrojet (pipeline contractor) won a tender to construct a gas pipeline between Taba in Egypt and Aqaba in Jordan. The pipeline's first-phase construction work began in March 2003 and was expected to be completed in June at an estimated total cost of \$1 billion (Alexander's Gas and Oil Connections, 2003b§).

## Outlook

The Egyptian mineral fuels industry is set to continue to grow during the next 3 to 4 years, mainly as a result of the Government's recent restructuring of the energy sector following several natural gas discoveries made in 2002 and 2003. This undertaking, along with the Government's effort to negotiate with neighboring countries to officially delimit economic zones in the Mediterranean Sea, suggest the Government will continue to move forward with its policy to develop the country's hydrocarbon resources. The natural gas sector is expected to expand rapidly as a result of additional output from two LNG export terminals scheduled to be completed in

2004 and 2005. Although natural gas exports are likely to overtake petroleum exports in the near future, the presence of several foreign companies exploring for petroleum offshore Egypt in 2003 suggests the possibility of further development of the petroleum sector if new discoveries are made.

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TABLE 1  
EGYPT: ESTIMATED PRODUCTION OF MINERAL COMMODITIES<sup>1,2</sup>

(Thousand metric tons unless otherwise specified)

Commodity	1999	2000	2001	2002	2003
<b>METALS</b>					
Aluminum metal metric tons	193,319 <sup>3</sup>	189,000 <sup>r</sup>	191,000 <sup>r</sup>	195,000	194,600
Copper, refined, secondary do.	6,000	4,000 <sup>r</sup>	4,000 <sup>r</sup>	4,000 <sup>r</sup>	4,000
Iron and steel:					
Iron ore and concentrate	2,700	1,900	2,500 <sup>r</sup>	2,500 <sup>r</sup>	2,500
Metal:					
Pig iron	1,300	1,400	1,400	1,700 <sup>r</sup>	1,700 <sup>p</sup>
Direct reduced iron	1,670	2,110 <sup>r</sup>	2,370	2,530	2,900 <sup>p</sup>
Steel, crude	2,627 <sup>r,3</sup>	2,838 <sup>r,3</sup>	3,799 <sup>r,3</sup>	4,316 <sup>r,3</sup>	4,400 <sup>p</sup>
Ferroalloys:					
Ferromanganese	30 <sup>3</sup>	30	30	30	30
Ferrosilicon	55 <sup>r</sup>	55 <sup>r</sup>	55 <sup>r</sup>	55 <sup>r</sup>	55
Manganese ore metric tons	20,000	20,000	20,000	20,000	20,000
Titanium, ilmenite	130	125	125	125	120 <sup>3</sup>
<b>INDUSTRIAL MINERALS</b>					
Asbestos metric tons	1,000	2,000	2,000	2,000	2,000
Barite	500	500	500	500	500
Cement, hydraulic, all types	23,313 <sup>3</sup>	24,143 <sup>3</sup>	25,700 <sup>r</sup>	28,155 <sup>r,3</sup>	26,639 <sup>3</sup>
Clays:					
Bentonite	50	50	50	50	50
Fire clay	300	300	300	300	300
Kaolin metric tons	290,000	290,000	260,000 <sup>r</sup>	260,000 <sup>r</sup>	260,000
Feldspar, crude do.	330,000	330,000	300,000	350,000	350,000
Fluorspar do.	500	500	500	500	500
Gypsum and anhydrite, crude	2,000	2,000	2,000	2,000	2,000
Lime	800	800	800	800	800
Nitrogen:					
Ammonia, N content	1,407 <sup>3</sup>	1,511 <sup>3</sup>	1,801 <sup>3</sup>	1,839 <sup>3</sup>	1,790 <sup>3</sup>
Urea, N content	700 <sup>3</sup>	853 <sup>3</sup>	1,091 <sup>3</sup>	1,078 <sup>r,3</sup>	1,134 <sup>3</sup>
Phosphate:					
Phosphate rock	1,018 <sup>3</sup>	1,096 <sup>3</sup>	972	1,500	1,500
P <sub>2</sub> O <sub>5</sub> content	298 <sup>3</sup>	317	293	434	400
Sodium compounds:					
Salt	2,400	2,400	2,400	2,400	2,400
Soda ash	50	50	50	50	50
Sodium sulfate metric tons	2,500	2,500	2,500	2,500	2,500
Stone, sand and gravel:					
Basalt thousand cubic meters	300	300	300	300	300
Dolomite	3,500	3,500	3,000	3,000	3,000
Granite, dimension stone cubic meters	40,000	40,000	40,000	40,000	40,000
Gravel thousand cubic meters	12,000	12,000	11,000	11,000	11,000
Limestone and similar do.	27,000	27,000	25,000	25,000	25,000
Marble (includes alabaster) blocks cubic meters	140,000	140,000	140,000	140,000	140,000
Sand:					
Industrial sand (glass sand)	600	600	600	600	640 <sup>3</sup>
Construction sand	22,000	22,000	21,000	21,000	21,000
Sandstone thousand cubic meters	--	--	10	10	10
Sulfur:					
Elemental, byproduct metric tons	4,400	4,500	4,500	4,500	4,500
Sulfuric acid, S content	214 <sup>3</sup>	220	220	220	220
Talc, soapstone, pyrophyllite metric tons	40,000	40,000	40,000	40,000	40,000
Vermiculite do.	12,000	12,000	12,000	12,000	12,000
<b>MINERAL FUELS AND RELATED MATERIALS</b>					
Coal	250 <sup>r</sup>	39 <sup>r</sup>	58 <sup>r</sup>	58 <sup>r</sup>	58
Coke	1,420	1,400	1,400	1,400	1,400

See footnotes at end of table

TABLE 1--Continued  
EGYPT: ESTIMATED PRODUCTION OF MINERAL COMMODITIES<sup>1,2</sup>

(Thousand metric tons unless otherwise specified)

Commodity	1999	2000	2001	2002	2003
MINERAL FUELS AND RELATED MATERIALS--Continued					
Gas, natural:					
Gross production million cubic meters	19,766 <sup>3</sup>	25,000	30,100 <sup>r</sup>	27,700 <sup>r</sup>	30,969 <sup>3</sup>
Dry do.	17,800	21,000	24,550 <sup>r,3</sup>	27,900	28,000
Petroleum:					
Crude, including condensate thousand 42-gallon barrels	302,000 <sup>3</sup>	285,000	277,000	221,350 <sup>r,3,4</sup>	221,219 <sup>3,4,5</sup>
Refinery products:					
Liquefied petroleum gas do.	5,371 <sup>3</sup>	5,500	5,500	6,705 <sup>r,3,4</sup>	6,763 <sup>3,4,6</sup>
Gasoline and naptha do.	43,699 <sup>3</sup>	45,000	45,000	51,572 <sup>r,3,4,7</sup>	53,210 <sup>3,4,7</sup>
Kerosene and jet fuel do.	15,472 <sup>3</sup>	16,000	16,000	19,579 <sup>r,3,4</sup>	19,335 <sup>3,4</sup>
Distillate fuel oil do.	45,857 <sup>3</sup>	46,000	46,000	57,457 <sup>r,3,4</sup>	61,060 <sup>3,4</sup>
Residual fuel oil do.	82,011 <sup>3</sup>	83,000	83,000	66,687 <sup>r,3,4</sup>	68,884 <sup>3,4</sup>
Lubricants do.	1,834 <sup>3</sup>	1,800	1,800	1,960 <sup>r,3,4</sup>	1,855 <sup>3,4</sup>
Asphalt do.	6,030 <sup>3</sup>	6,000	6,000	5,484 <sup>r,3,4</sup>	5,709 <sup>3,4</sup>
Unspecified <sup>8</sup> do.	1,987 <sup>3</sup>	1,700	1,700	2,139 <sup>r,3,4</sup>	2,155 <sup>3,4</sup>
Total do.	202,261 <sup>3</sup>	205,000	205,000	211,583 <sup>r,3,4</sup>	218,971 <sup>3,4</sup>

<sup>p</sup>Preliminary. <sup>r</sup>Revised. -- Zero.

<sup>1</sup>Estimated data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Table includes data available through October 27, 2004. In addition to those listed, Egypt produced a number of commodities for which data were unavailable; these include gemstones, a number of metals, such as gold; lead, which was produced from recycled material; zinc; and manufactured mineral commodities, such as carbon black and glass.

<sup>3</sup>Reported figure.

<sup>4</sup>Source: Ministry of Petroleum of the Arab Republic of Egypt.

<sup>5</sup>Excluding condensate.

<sup>6</sup>Excluding product from fields.

<sup>7</sup>Gasoline only.

<sup>8</sup>Amounts needed to complete reported refinery products totals shown.